

1 **EU - TYPE EXAMINATION CERTIFICATE**

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion  
Directive 2014/34/EU**

3 EU - Type Examination Certificate **Baseefa09ATEX0157 – Issue 3**  
Number:

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL4532 Pulse Isolator**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa09ATEX0157 to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. See Certificate History

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following :

⊕ II (I) GD [Ex ia Ga] IIC (-20°C ≤ T<sub>a</sub> ≤ +60°C)  
[Ex ia Da] IIIC (-20°C ≤ T<sub>a</sub> ≤ +60°C)  
⊕ I (M1) [Ex ia Ma] I (-20°C ≤ T<sub>a</sub> ≤ +60°C)

SGS Baseefa Customer Reference No. 0703

Project File No. 16/0371

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**SGS Baseefa Limited**

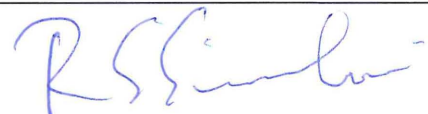
Rockhead Business Park, Staden Lane,  
Buxton, Derbyshire SK17 9RZ

Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601

e-mail [baseefa@sgs.com](mailto:baseefa@sgs.com) web site [www.sgs.co.uk/baseefa](http://www.sgs.co.uk/baseefa)

Registered in England No. 4305578.

Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN



R S SINCLAIR

TECHNICAL MANAGER

On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0157 – Issue 3**

15 **Description of Product**

The MTL4532 Pulse Isolator is designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to a switch, proximity detector, current pulse transmitter or voltage pulse transmitter located in the hazardous area by limitation of voltage and current. Transformers, an opto-isolator and a relay provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL4532 Pulse Isolator is designed for connection of a switch, proximity detector, current pulse transmitter or voltage pulse transmitter situated in the hazardous area. The apparatus repeats the pulse signals from the apparatus in the hazardous area onto outputs in the non-hazardous area. An alarm circuit provides a relay contact output in the non-hazardous area to indicate a failure.

The equipment comprises isolating transformers, an opto-isolator, a relay, duplicated zener diodes chains and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board (PCB) and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. A jack socket is provided for the connection of a suitably certified data terminal for programming the apparatus.

**Input / Output Parameters**

Non-Hazardous Area Terminals 7 to 14

$$U_m = 253V \text{ r.m.s.}$$

The circuit connected to non-hazardous area terminals 7, 8, 9, 10, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.

Non-hazardous area terminals 11 & 12 are connected to relay contacts which can switch up to 250V r.m.s. or 5A r.m.s. or 100VA.

Hazardous Area Terminals 2 w.r.t. 1, Hazardous Area Terminals 6 w.r.t. 1 or Hazardous Area Terminals 6 w.r.t. 3

$$\begin{array}{ll} U_o = 10.5V & C_i = 0 \\ I_o = 14mA & L_i = 0 \\ P_o = 37mW & \end{array}$$

Hazardous Area Terminals 3 w.r.t. 1

$$\begin{array}{lll} U_o = 1.1V & U_i = 30V & C_i = 0 \\ I_o = 53mA & I_i = 100mA & L_i = 0 \\ P_o = 15mW & \end{array}$$

Although the apparatus does not comply with the simple apparatus requirements of Clause 5.7 of EN 60079-11: 2012, when terminals 3 w.r.t. 1 are connected in an intrinsically safe circuit the internal stored energy, voltage and current of the interface will not add more than the values specified in Clause 5.7 of EN 60079-11: 2012 to the parameters of the circuit into which it is connected.

When an external intrinsically safe source is connected to these terminals it should have a source resistance of  $U_i / I_i$  and the capacitance and either the inductance or inductance to resistance ratio (L/R) of the hazardous area connections must not exceed the values detailed in the certificate of the intrinsically safe source. Hazardous area terminals 2, 4, 5 and 6 must not be used when the source is connected.

Hazardous Area Terminals 5 w.r.t. 1

$$\begin{array}{ll} U_o = 10.5V & C_i = 0 \\ I_o = 1.1mA & L_i = 0 \\ P_o = 2.9mW & \end{array}$$

Hazardous Area Terminals 4 w.r.t. 3

$$\begin{array}{ll} U_o = 28V & C_i = 0 \\ I_o = 93mA & L_i = 0 \\ P_o = 0.65W & \end{array}$$

Hazardous Area Terminals 4 & 3 w.r.t. 1

$$\begin{array}{ll} U_o = 28V & C_i = 0 \\ I_o = 93mA \text{ at } 28V & L_i = 0 \\ I_o = 146mA \text{ at } 2.9V & \\ P_o = 0.65W & \end{array}$$

Hazardous Area Terminals 5 & 4 w.r.t. 1

$$\begin{array}{ll} U_o = 28V & C_i = 0 \\ I_o = 93mA \text{ at } 28V & L_i = 0 \\ I_o = 94mA \text{ at } 27.5V & \\ P_o = 0.65W & \end{array}$$

Programming / Configuration Port (Jack Socket)

$$\begin{array}{ll} U_o = 8V & U_i = 9.1V \\ I_o = 15mA & C_i = 0 \\ P_o = 27mW & L_i = 0 \end{array}$$

**Load Parameters**

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected must not exceed the following values:

GROUP	CAPACITANCE ( $\mu F$ )	INDUCTANCE (mH)	OR L/R RATIO ( $\mu H/ohm$ )
Hazardous Area Terminals 2 w.r.t. 1, Hazardous Area Terminals 6 w.r.t. 1 or Hazardous Area Terminals 6 w.r.t. 3			
IIC	2.41	181.4	967
IIB*	16.8	725.6	1,333
IIA	75.0	1,000	1,333
I	95.0	1,000	1,333
Hazardous Area Terminals 3 w.r.t. 1			
IIC	100	12.6	2,439
IIB*	1,000	50.6	9,757
IIA	1,000	101.2	19,515
I	1,000	166.1	32,018
Hazardous Area Terminals 5 w.r.t. 1			
IIC	2.41	1,000	12,313
IIB*	16.8	1,000	49,254
IIA	75.0	1,000	98,508
I	95.0	1,000	161,616
Hazardous Area Terminals 4 w.r.t. 3			
IIC	0.083	4.2	55
IIB*	0.65	12.6	210
IIA	2.15	33.6	444

GROUP	CAPACITANCE ( $\mu\text{F}$ )	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu\text{H}/\text{ohm}$ )
I	3.76	53.7		668
Hazardous Area Terminals 4 & 3 w.r.t. 1				
IIC	0.083	1.66		55
IIB*	0.65	6.67		210
IIA	2.15	13.3		444
I	3.76	21.8		668
Hazardous Area Terminals 5 & 4 w.r.t. 1				
IIC	0.083	4.02		55
IIB*	0.65	16.0		210
IIA	2.15	32.1		444
I	3.76	52.8		668
Programming / Configuration Port (Jack Socket)				
IIC	0.367	60.7		360
IIB*	2.15	243.0		1,441
IIA	8.8	486.1		1,484
I	12.32	797.5		1,484

\* Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

- The above load parameters apply when one of the two conditions below is given:
  - the total  $L_i$  of the external circuit (excluding the cable) is  $< 1\%$  of the  $L_o$  value or
  - the total  $C_i$  of the external circuit (excluding the cable) is  $< 1\%$  of the  $C_o$  value.
- The above parameters are reduced to 50% when both of the two conditions below are given:
  - the total  $L_i$  of the external circuit (excluding the cable) is  $\geq 1\%$  of the  $L_o$  value and
  - the total  $C_i$  of the external circuit (excluding the cable) is  $\geq 1\%$  of the  $C_o$  value.

The reduced capacitance of the external circuit (including cable) shall not be greater than  $1\mu\text{F}$  for Groups IIB, IIA & I and  $600\text{nF}$  for Group IIC.

## 16 Report Number

GB/BAS/ExTR16.0237/00

## 17 Specific Conditions of Use

None

## 18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

## 19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI4532-1	8 of 8	3	7.16	MTL4532 Certification Label Details – Baseefa

The above drawing is associated and held with IECEX BAS 09.0072 Iss. 3

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4532-1	1 of 8	1	12.09	Parts List for MTL4532
CI4532-1	2 of 8	1	12.09	Circuit Diagram for the MTL4532 and MTL5532
CI4532-1	3 of 8	1	12.09	Circuit Diagram for the MTL4532 and MTL5532
CI4532-1	4 of 8	1	12.09	MTL4532 Track Layout
CI4532-1	5 of 8	2	1.13	MTL4532 Component Layout
CI4532-1	6 of 8	1	5.09	PCB Detail for TPL300
CI4532-1	7 of 8	1	5.09	PCB Detail for TPL301
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI4500-7	1 of 1	2	1.11	MTL4500 Relay Encapsulant
CI4500-100	1 of 1	2	1.13	MTL 4500 Case

The above drawings are associated and held with IECEX Certificate No. IECEX BAS 09.0072

## 20 Certificate History

Certificate No.	Date	Comments
Baseefa09ATEX0157	29 January 2010	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Test Report No. GB/BAS/ExTR09.0104/00.

Certificate No.	Date	Comments
Baseefa09ATEX0157/1	31 January 2011	<p>i) To permit the addition of output parameters for hazardous area terminals 6 w.r.t. 3, hazardous area terminals 5 w.r.t. 1 and hazardous area terminals 4 w.r.t. 3. The addition of these parameters does not affect the original assessment.</p> <p>ii) To permit the fitting of alternative relays on the equipment.</p> <p>iii) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted.</p> <p>iv) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment.</p> <p>v) To permit the notes associated with the load parameters specified in the original certificate schedule to be revised.</p> <p>vi) To confirm the current design of the MTL4532 Pulse Isolator has been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings.</p> <p>The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0282/00.</p>
Baseefa09ATEX0157/2	28 March 2014	<p>i) To permit minor component and drawing changes not affecting the original assessment.</p> <p>ii) To permit the correction of the parameters for the Programming / Configuration Port (Jack Socket).</p> <p>iii) To confirm the current design of the MTL4532 Pulse Isolator has been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 and EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated.</p> <p>The associated assessment is documented in Certification Report No. GB/BAS/ExTR14.0065/00.</p>
Baseefa09ATEX0157 Issue 3	26 September 2016	<p>This issue of the certificate incorporates previously issued primary &amp; supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 &amp; EN 60079-11: 2012.</p> <p>The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking.</p> <p>The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0237/00.</p>
For drawings applicable to each issue, see original of that issue.		